# MISSOURI MONTHLY VITAL STATISTICS

## *Provisional Statistics*

*FROM THE*

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# *Focus. . . Hypothermia Mortality in Missouri*

Cold weather is a hazard to life in Missouri. During the past ten winters, 123 Missourians have died due to hypothermia, an average of 12 deaths per year. See Figure 1. During 1979-1996*, the age-adjusted rate for hypothermia-related deaths in Missouri was lower than in the rest of the United States (0.2 per 100,000 population versus 0.3).[1]

As seen in Figure 2, hypothermia death rates increase with age. The elderly are at the highest risk for mortality because of physiologic changes (e.g., lack of appropriate vasoconstriction in response to cold environments, decreased basal metabolic rate, and impaired shivering mechanism) and underlying disease.[2] Limited mobility and less perception of cold are also contributing factors.

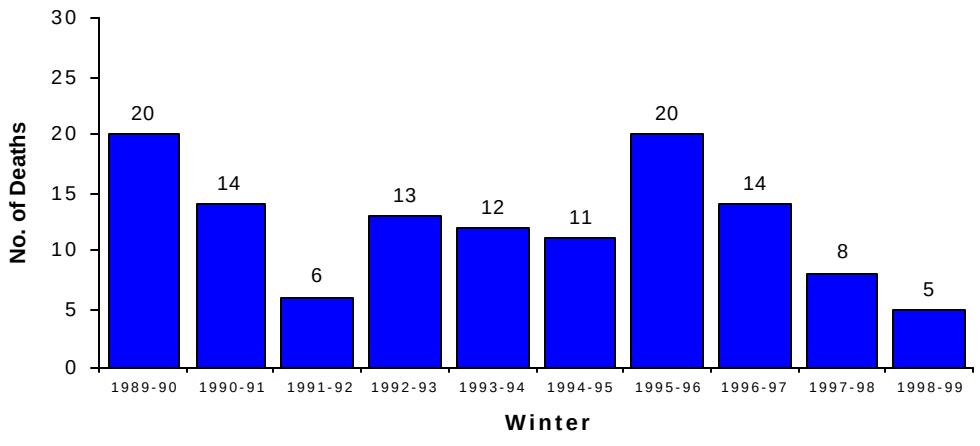
During the past ten winters in Missouri, hypothermia-related deaths were more likely to occur among men (rate: 3.7 versus 1.0) and persons aged 65 and over (rate: 8.7 versus 1.3). This trend mirrors that for the United States for the same time period.[1]

During 1989-1996*, hypothermia-related death rates in the United States decreased significantly among all age and sex groups.[1] This decrease is not reflected in Missouri's data. During 1989-1996, decreased hypothermia-related death rates occurred in males aged 65 and over, females aged 65 and over and females aged 0-64 years. However, hypothermia-related death rates in males aged 0-64 have shown increases, and in some instances have exceeded those for females aged 65 and over. See Figure 3. Nationally, hypothermia-related death rates for males and females aged 65 and over have remained distinctively higher than those for males and females aged 0-64 years

During the past ten winters in Missouri, those age 65 and over accounted for 65 (53 percent) of the 123 hypothermia deaths in Missouri. Of those 65 deaths, 46 (71 percent) were males and 19 (29 percent) were females. Of the 46 deaths in males, 37 (80 percent) were white and 9 (20 percent) were black. Of the 19 deaths in females, 18 (95 percent) were white and 1 (5 percent) was black.

* Most recent published national data available.

**Figure 1**
**Recorded Hypothermia Deaths by Winter: Missouri, 1989–90 to 1998–99**

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Of the 65 elderly deaths, 10 (15 percent) death certificates indicated the cause of death as alcohol related; 34 (52 percent) indicated no alcohol relationship and 21 (32 percent) indicated unknown alcohol relationship or left the field blank.

During the past ten winters in Missouri, those age 0-64 accounted for 58 (47 percent) of the 123 hypothermia deaths in Missouri. Of those 58 deaths, 49 (84 percent) were males and 9 (16 percent) were females. Of the 49 deaths in males, 32 (65 percent) were white, 16 (33 percent) were black and 1 (2 percent) was American Indian. Of the 9 female deaths, 4 (44 percent) were white and 5 (56 percent) were black. Of the 58 deaths in those age 0-64, 30 (52 percent) death certificates indicated the cause of death was alcohol related; 20 (34 percent) indicated no alcohol relationship and 8 (14 percent) indicated unknown alcohol relationship or left the field blank.

Location of hypothermia deaths in Missouri during the past ten winters is shown in Figure 4. Among those age 65 and over, the majority of deaths, 36 (55 percent), occurred in the outside environment, 19 (29 percent) occurred inside buildings and location is unknown for 10 (15 percent). The assumption that the majority of elderly die due to exposure to cold inside temperatures because they are homebound or bedfast and are trying to reduce expenditures on heating does not appear to be true for Missouri. There seems to be a need for as much concern regarding the influence of mobility, impaired mental state and alcohol intoxication on the number of Missouri deaths due to hypothermia in the elderly.

Of the 36 elderly hypothermia deaths that occurred outside, 22 (61 percent) had apparently wandered outside their residence or were walking or working outside and fell, 7 (19 percent) wandered away from care facilities, 1 (3 percent) slept or passed out in a motor vehicle due to alcohol intoxication and 6 (17 percent) were found outside with no specifics given. Three of the outside falls were alcohol-related.

Of the 19 elderly hypothermia deaths that occurred inside buildings, 3 (16 percent) had fallen in a cold garage, 3 (16 percent) had insufficient heat in their residence, 2 (11 percent) were alcohol-related with no specifics given, 1 (5 percent) fell in a cold basement, 1 (5 percent) fell in their residence due to alcohol intoxication, 1 (5 percent) fell in their residence with no specifics given and 8 (42 percent) were found in their residences with no specifics given. Of the three deaths due to insufficient heat, one had run out of LP gas, one had probably turned off the heat in their residence due to alcohol intoxication and one had tipped over and shut off a space heater due to alcohol intoxication.

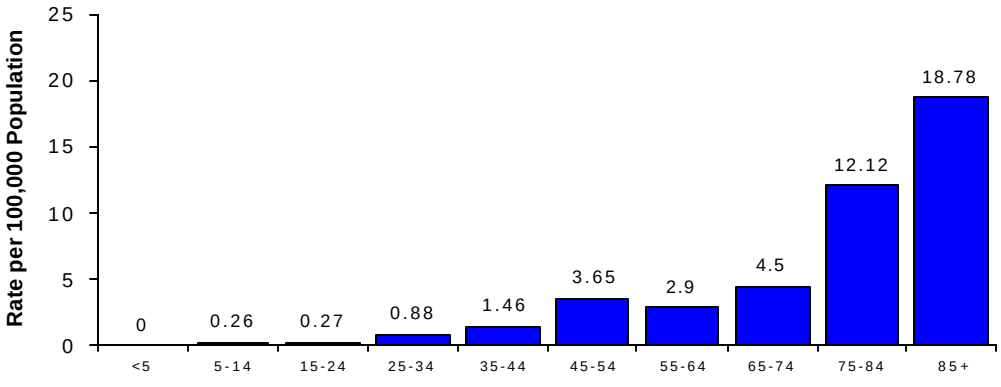
As might be expected, the majority, 43 (74 percent), of the hypothermia deaths in those age 0-64 occurred in a cold outside environment, with only 15 (26 percent) occurring inside buildings. See Figure 4. There apparently is a need for concern over the number of deaths that were alcohol or drug-related in this age category. Of the 43 individuals who died outside, 22 (51 percent) had apparently fallen or passed out due to alcohol intoxication, 12 (28 percent) were walking or working outside, 3 (7 percent) apparently slept or passed out in their motor vehicles due to alcohol intoxication, 2 (5 percent) wandered away from home or got lost, 1 (2 percent) passed out on a porch due to methamphetamine use, 1 (2 percent) fell asleep or passed out in a motor vehicle due to cocaine use, 1 (2 percent) fell in a drainage ditch due to diphenhydramine intoxication and 1 (2 percent) was found outside with no specifics given.

Of the 15 hypothermia deaths in those age 0-64 that occurred in buildings, 5 (33 percent) were found in vacant or condemned buildings, 3 (20 percent) were alcohol-related with no further details given, 1 (7 percent) apparently fell or passed out in the garage due to cocaine use, 1 (7 percent) apparently fell or passed out in a stairwell due to alcohol intoxication, 1 (7 percent) tipped over a space heater and shut it off due to alcohol intoxication and 4 (27 percent) were found in their residence with no specifics given.

Hypothermia-related morbidity and mortality can be prevented by early recognition of symptoms and prompt medical attention. Persons who are outdoors for extended periods of time during cold weather should wear insulated or layered clothing, including headgear, that does not retain moisture; maintain their fluid and calorie intake; abstain from drinking alcoholic beverages; and avoid overexertion and excessive sweating.

Each year, when extreme cold termperatures warrant, the Department of Health issues a news release warning Missourians to take precautions to prevent cold-related illness and death. Because of the findings of this study, future news releases will not only include precautions to prevent cold-related illness and death in the elderly and very young, but will also stress the need for friends and relatives of individuals

**Figure 2**
**Rate of Hypothermia Deaths by Age Group: Missouri, 1989–90 to 1998–99**



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who suffer from chronic alcoholism or drug addiction to check in on them frequently during cold weather to assure they are safe and keeping warm.

Additional articles on hypothermia mortality in Missouri are available through the Department of Health Home Page at **http://www.health.state.mo.us/ColdAndHeat/CAndH.html.**

References:

[1] CDC. Hypothermia-related deaths--Alaska, October 1998-April 1999, and Trends in the United States, 1979-1996. MMWR 2000; 49 (1): 11-14.

[2]CDC. Hypothermia-related deaths--Georgia, January 1996-December 1997, and United States, 1979-1995. MMWR 1998; 47 (48): 1037-40.

**Figure 3**
**Rate of Hypothermia-Related Deaths by Age and Sex: Missouri 1989-1990 to 1998-1999**

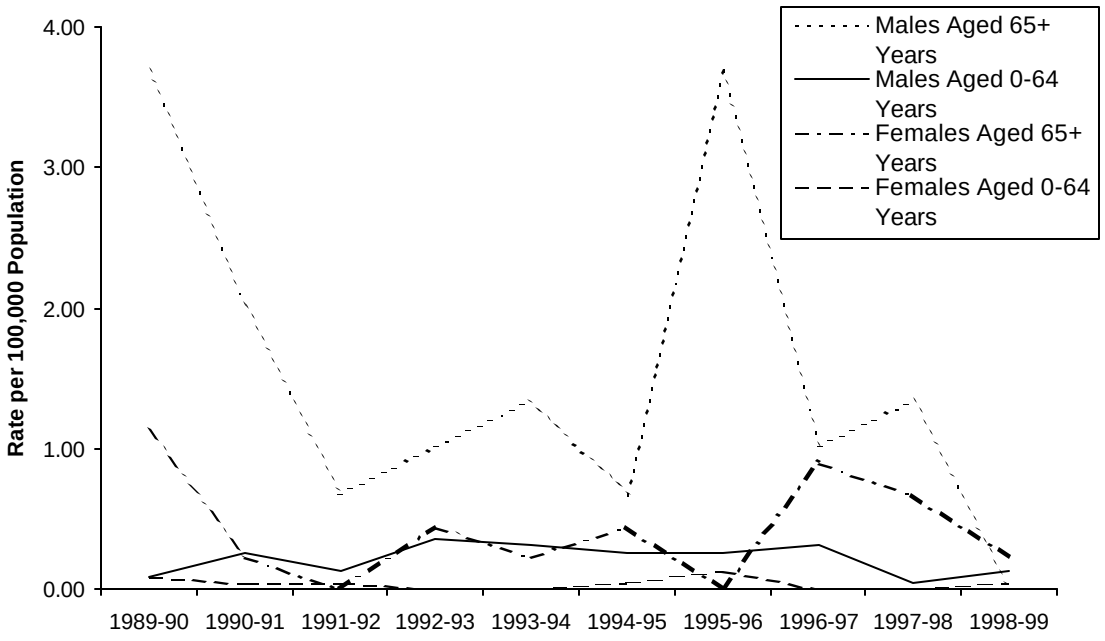
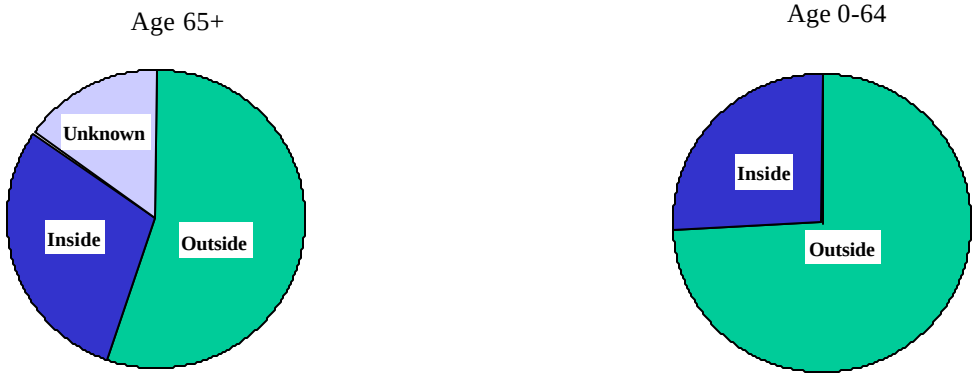



**Figure 4**
**Location of Hypothermia Deaths by Age Category: Missouri 1989–90 to 1998–99**



# Provisional Vital Statistics for November 1999

**Live births** increased in November as 6,790 Missouri babies were born compared with 5,466 in November 1998. Cumulative births for the 11- and 12-month periods ending with November also show increases.

**Deaths** increased in November as 4,668 Missourians died compared with 4,509 one year earlier. Cumulative deaths for the 11- and 12-month periods ending with November also show increases.

The **Natural increase** in November was 2,122 (6,790 births minus 4,668 deaths). The natural increase was higher in 1999 for all three time periods shown below.

**Marriages** increased for all three time periods shown below. For the 11-month period ending with November, it represents the first such increase since 1994.

**Dissolutions of marriage** decreased slightly for all three time periods shown below. The marriage to divorce ratio increased from 1.73 to 1.83 for the 12 months ending with November.

**Infant deaths** increased in November as 60 infants died compared with 39 inNovember 1998. However, the infant death rate decreased for the 12 months ending with November from 7.9 to 7.7 per 1,000 live births.

## PROVISIONAL RESIDENT VITAL STATISTICS FOR THE STATE OF MISSOURI

| Item | November | | | | Jan.-Nov. cumulative | | | | 12 months ending with November | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | | Rate* | | Number | | Rate* | | Number | | Rate* | | |
| | 1998 | 1999 | 1998 | 1999 | 1998 | 1999 | 1998 | 1999 | 1998 | 1999 | 1997 | 1998 | 1999 |
| **Live Births** ..... | 5,466 | 6,790 | 11.5 | 15.1 | 68,182 | 69,934 | 13.7 | 13.9 | 75,085 | 77,404 | 13.3 | 13.8 | 14.2 |
| **Deaths** ..... | 4,509 | 4,668 | 9.5 | 10.4 | 49,054 | 50,401 | 9.9 | 10.0 | 54,164 | 54,726 | 10.1 | 10.0 | 10.0 |
| **Natural increase**.... | 957 | 2,122 | 2.0 | 4.7 | 19,128 | 19,533 | 3.8 | 3.9 | 20,921 | 22,678 | 3.3 | 3.8 | 4.1 |
| **Marriages** ..... | 2,839 | 3,305 | 6.0 | 7.3 | 40,987 | 42,710 | 8.2 | 8.5 | 43,712 | 45,408 | 8.2 | 8.0 | 8.3 |
| **Dissolutions** ..... | 1,961 | 1,859 | 4.1 | 4.1 | 22,971 | 22,545 | 4.6 | 4.5 | 25,305 | 24,879 | 4.7 | 4.7 | 4.6 |
| **Infant deaths** ..... | 39 | 60 | 7.1 | 8.8 | 547 | 543 | 8.0 | 7.8 | 590 | 593 | 7.9 | 7.9 | 7.7 |
| **Population base**..... (in thousands) | ... | ... | 5,439 | 5,470 | ... | ... | 5,439 | 5,470 | ... | ... | 5,405 | 5,436 | 5,467 |

* Rates for live births, deaths, natural increase, marriages and dissolutions are computed on the number per 1,000 estimated population. The infant death rate is based on the number of infant deaths per 1,000 live births. Rates are adjusted to account for varying lengths of monthly reporting periods.